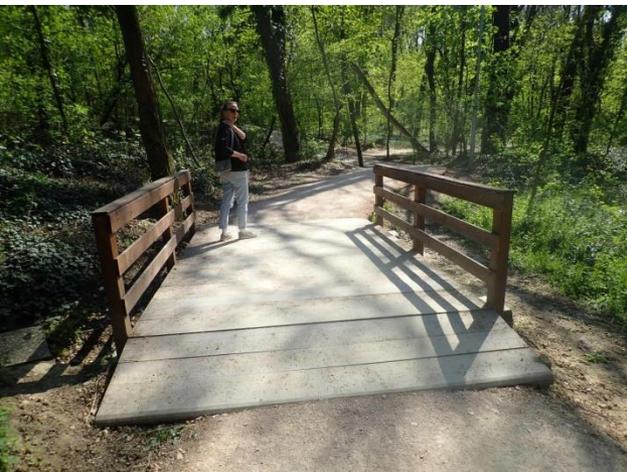




URBAN FORESTS AND FORESTRY IN BELGRADE

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Definition of Urban Forests

"Urban forests can be defined as networks or systems comprising all woodlands, groups of trees, and individual trees located in urban and peri-urban areas; they include, therefore, forests, street trees, trees in parks and gardens, and trees in derelict corners. Urban forests are the backbone of the green infrastructure, bridging rural and urban areas and ameliorating a city's environmental footprint" (SALBITANO F., et al. 2016).

Urban forests contribute to:

- Creating and improving site condition around cities
- Represent biodiversity foundation
- Improve soil quality
- Contribute to the mitigation of land degradation
- Contribute to human health in densely populated surroundings

Urban Forests Today

- More than 50% of world's population lives in urban areas
- It has been projected that more than 60% of population will inhabit urban areas until 2050
- Urban areas contribute to GHG emissions with around 75%
- The Pan European study claims that more than 60% of people live in urban areas with insufficient green areas (Barboza, E.P. et al. 2021)
- Urban forests could play an important role in securing the green environment with their multiple positive effects on urban areas and urban populations

Initiatives in Urban Forestry

- We are about to enter the **Ecosystem Restoration Decade**. In a global effort to restore 350 million hectares of degraded and deforested land by 2030;
- Launched in 2019, the Trees in Cities Challenge calls for efforts in tree planting to support greener, more sustainable and climate resilient cities. **UNECE announced that 11 million trees will be planted as a result of the Trees in Cities Challenge.**
- **The initiative "rule 3-30-300" stipulates that individuals should see at least three trees from their home, that in each settlement there should be 30% canopy coverage and 300 meters should be the maximum distance to the nearest quality public green area.**
- In the draft Spatial plan of Serbia 2021-2035 afforestation is planned on 5,800 hectares of the Belgrade area.

<https://wedocs.unep.org/bitstream/handle/20.500.11822/30919/UNDecade.pdf>

<https://treesincities.unece.org/>

<https://iucnurbanalliance.org/promoting-health-and-wellbeing-through-urban-forests-introducing-the-3-30-300-rule/>

[Strategija pošumljavanja područja Beograda | Grad Beograd](#)

State of Forests in the Belgrade Region (1)

- The total area under forests in the Belgrade area is 50.800 ha.
- The forest area is 15.7% and the estimated optimal forest cover for the Belgrade region is 27.3% (Medarević M., et al.1983.,1996.,2010.,2022).
- 35 species of trees are present, 22 of which are indigenous.
- Artificially established stands are intensive plantings of poplar clones of simple monotonous structure.

State of Forests in the Belgrade Region (2)

- In terms of physiological and functional maturity, they are a more extensive category than natural linear forests of the hygrophilic band.
- Cultures of conifers are valuable from an aesthetic point of view, but non-resistant to risk factors of both abiotic and biotic nature.
- The effects are increasingly present drying. Despite this realization, for example, we are still planting spruce in Belgrade today

State of Forests in the Belgrade Region

(3)

- Dominance of areas of coppice stands and intensive poplar plantations
- Forests of natural origin are dominated by 70-100 year old stands.
- The habitat of linear forests is additionally highly endangered by the anthropogenic action through gravel pits opening.
- High pressure from the expansion of residential areas

Significance of Forests in Cities

UNECE (2019) stated that urban green areas have a positive impact on social cohesion and help to form stronger communities. They can also raise the value of the surrounding property by up to 10%.

What should cities, and among them BG advocate for (according to UNECE) - nine reasons to participate:

- Being part of a community;
- Mitigate the effects of climate change;
- Create economic benefits;
- Build urban resilience;
- Cold outdoor temperature (in too hot summer weather);
- Improve human health and well-being;
- Nurture biodiversity;
- Contribute to cleaner air.
- Contribute to food safety.

Priority Forest Functions

(state forests)

No.	Purpose of the area	Total area	
		ha	%
1.	Wood production	7.793,38	51,64
2.	Hunting grounds	1.093,56	7,25
3.	Seed stand	24,12	0,16
4.	Protective	1.578,3	10,45
5.	Recreational forest	709,29	4,70
6.	Strict nature reserve	3,40	0,02
7.	Forests of urban zones	3.124,27	20,70
8.	Reparation of former mine sites	764,76	5,07
In total:		15.091,08	100,00

Institutional Coverage

- State forests are managed by several organizations.
- The largest area is managed by PE "Srbijašume" - FE Beograd.
- And more than 15 other small forest users/managers
- Financing mostly comes from internal management affairs
- The maximum annual average allocation from city of Belgrade was 117 euros/ha
- The city of Belgrade allocated 12 million EUR for public greenery
- The afforestation budget is around 120 000 EUR

Inventory and Monitoring of Forests, Parks and Trees in Urban Areas

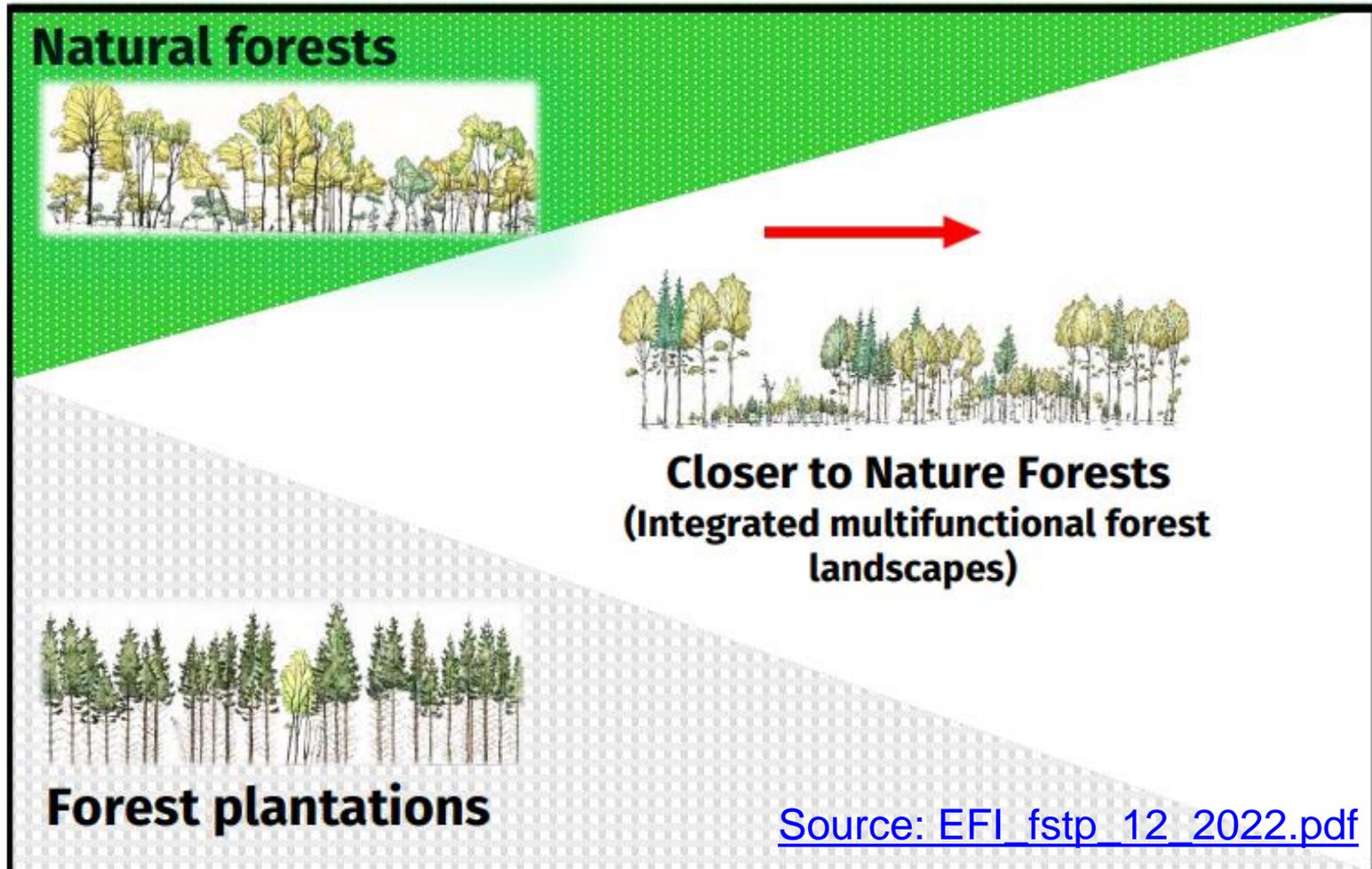
- ***Special monitoring Elite trees and species from the IUCN list of rare, endangered relict*** and endemic species kept ex site. An analogous methodology can also be applied in parks.
- ***Permanent monitoring of the state of forests in urban areas.*** It most often refers to monitoring phenological phenomena, monitoring the health status of trees, the health status of soil, etc.
- ***Research of forest sites in the conditions of climate change***
- ***Monitoring the content of heavy metals and the state of the water-air regime in the soil*** on which the smooth functioning of natural processes in the forest depends.

Urban Forests and Nature Protection

- Most of the urban forests in the Belgrade region are under a protected status of some kind based on the Nature Protection Act
- Divided into 3 areas/ Zones of management
- Instructions for management are set by the Nature Protection Act
- As a reaction, forest praxis responds with a low intensity harvesting volume of 20-30% of the increment
- It leads to deteriorating health condition and reduced tree vitality

Close/er to Nature Forest Management

Segregated - - - - - Mosaic (TRIAD) - - - - - Integrated



close to nature : definitions & principles

Karl **GAYER** (1886^{*}): Der gemischte Wald [*The mixed forest*]

Hans **LEIBUNDGUT** (1986^{**})

close to nature silviculture

➤ principally based on given natural conditions / dynamics

but

➤ *may vary from natural forests (structure, species composition)*

➤ *even enrich them by incorporating non-native „guest“ species*

as long as this

does not negatively affect the forest's natural ecosystem dynamics

Unter „**naturnaher Waldwirtschaft**“ verstehe ich dagegen eine weniger eng eingeschränkte Wirtschaftsweise, welche:

- zwar weitgehend von den natürlichen Gegebenheiten ausgeht, jedoch
- *den Naturwald hinsichtlich Aufbau und Baumartenmischung verändern*
- *und sogar durch nicht heimische „Gastbaumarten“ bereichern kann, solange dadurch*
- *das natürliche Beziehungsgefüge des Waldes nicht nachteilig verändert wird.*

* Gayer, K. (1886): Der gemischte Wald, seine Begründung und Pflege, insbesondere durch Horst- und Gruppen-wirtschaft. Parey, Berlin, 168pp.

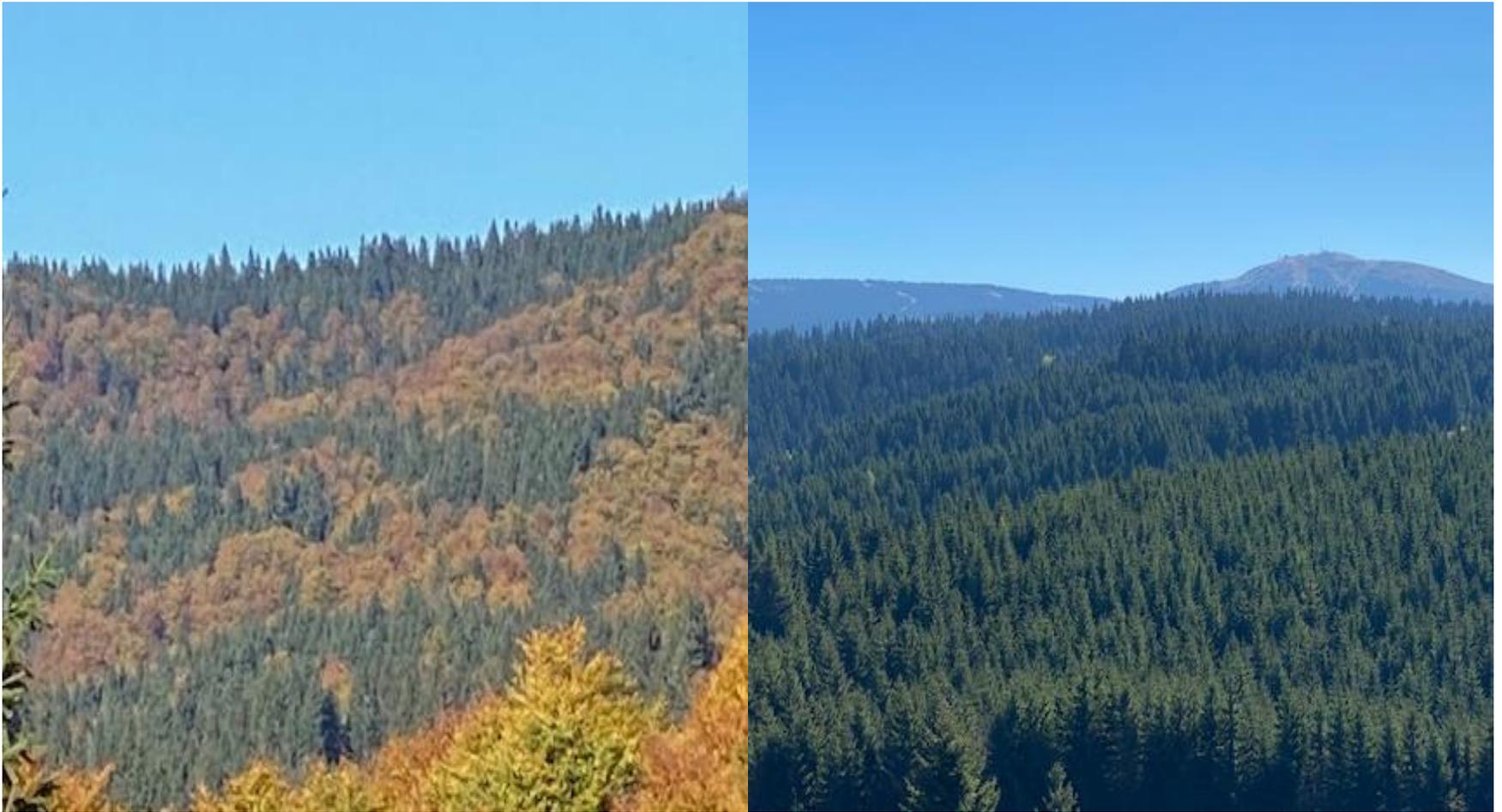
** Leibundgut, H. (1986): Ziele und Wege der naturnahen Waldwirtschaft. *Schweiz. Z. Forstwes.*, 137, 245-250.

Principles of Close/er to Nature Forest Management

The 7 principles of Closer-to-Nature Forest Management are:

1. Retention of habitat trees, special habitats, and dead wood
2. Promoting native tree species as well as site adapted non-native species
3. Promoting natural tree regeneration
4. Partial harvests and promotion of stand structural heterogeneity
5. Promoting tree species mixtures and genetic diversity
6. Avoidance of intensive management operations
7. Supporting landscape heterogeneity and functioning

Outcome and Output of Close to Nature Forest Management



What Urban Forests could look like



Purple beech trees by Henri Matisse, 1901: The Legacy of Prince Paul

